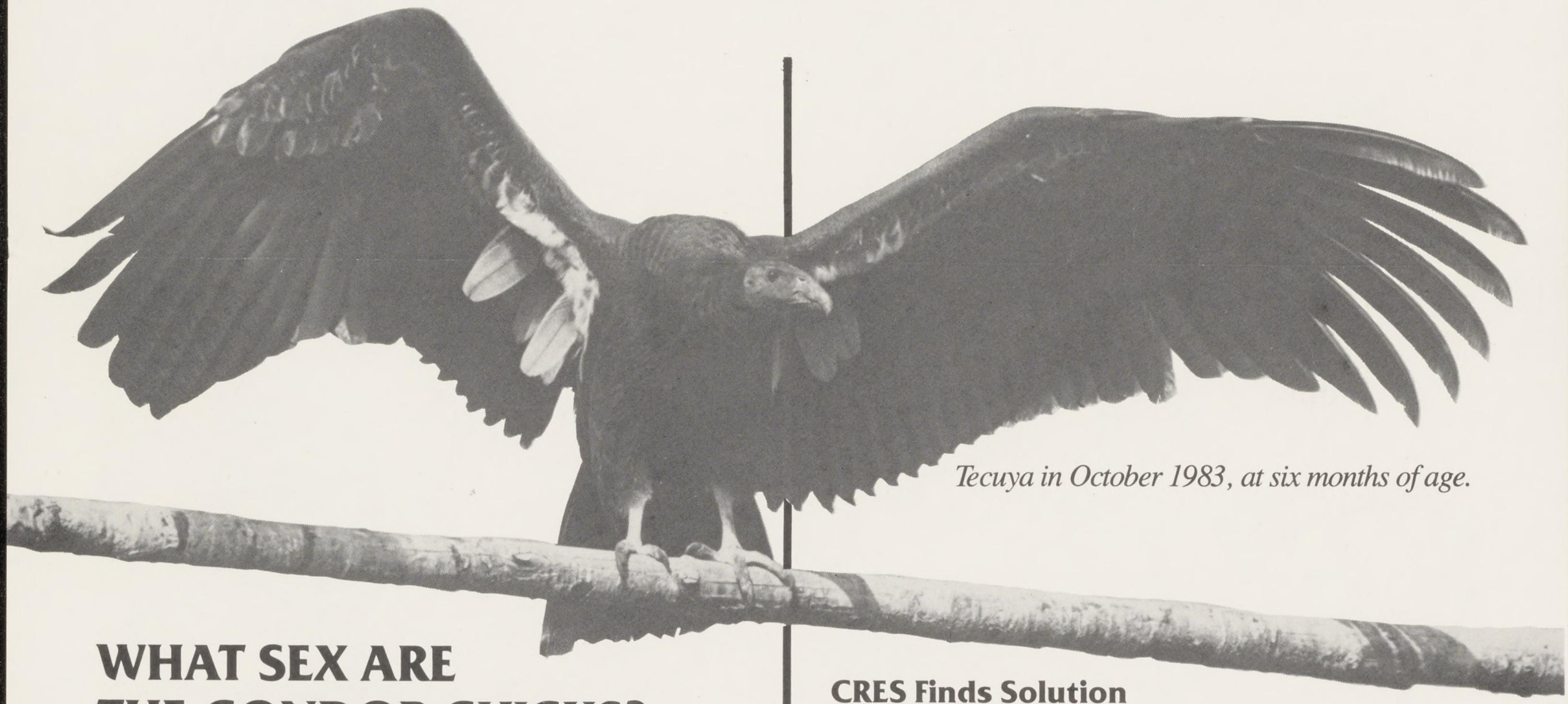
CRES REPORT

The Center For
Reproduction of
Endangered Species

Volume 2, Number 4–1984

Ojai, hatched April 1984.



Tecuya in October 1983, at six months of age.

WHAT SEX ARE THE CONDOR CHICKS?

Curiosity surrounding this question is certainly strong, fueled by an intense worldwide interest in the fate of the crucially endangered California condor. With less than three dozen of these magnificent birds left alive in the world today, the curiosity at the Center for Reproduction of Endangered Species (CRES) is far from idle.

CRES researchers have worked to develop and test a reliable method for determining the sex of newly hatched chicks. Their efforts will contribute significantly to the California Condor Recovery Program, under which it is proposed to release juvenile condors hatched in captivity back into the wild as early as next year. For this plan to succeed, the sex ratio of the chicks from each season must be known.

You Can't Tell This Bird By Its Cover

A major difficulty in doing research with endangered species is that there are simply too few of the animals available to test or observe. In sexing California condors, this basic problem was compounded by another: The birds apparently are not externally sexually distinct at any age. Males and females look identical.

Still another challenge faced by the CRES researchers was to devise a sexing method that is totally safe for the young birds, that can be done without touching them and that is potentially applicable to the rarest of species.

CRES Finds Solution

The egg waste estrogen (EWE) analysis developed by CRES under the direction of Arden Bercovitz, an avian reproductive physiologist, appears to overcome all of these problems. The test is passing rigorous evaluation of its reliability with flying colors. Results of EWE analysis on the six chicks hatched in 1984 indicated that all are female. Chromosomal evaluation from blood samples taken later confirmed the EWE analysis results.

A Discovery Is Hatched

As a condor embryo grows during the last half of incubation, the gonads (testes in males and ovaries in females) begin to function. Estrogens and androgens are produced. As this happens, the metabolic waste products of these hormones accumulate inside the egg. They then are readily and easily measurable if fecal material is collected from the shell remains when the chick hatches.

An ovary produces more estrogen than does a testis, and one major estrogen, estradiol (E2), is greatly concentrated in the feces of female chicks.

Other Applications

Now, several collaborative projects are extending tests of the EWE sexing method to other species of vultures and birds of prey. The American Federation of Aviculture has funded a pilot study of the EWE technique in parrot chicks; this work focuses on the Puerto Rican parrot, which, like the California condor, has a total world population of less than three dozen.

CRES Report
Zoological Society of San Diego
Post Office Box 551
San Diego, California 92112-0551

Non-Profit Org.
U.S. Postage
PAID
San Diego, Calif.
Permit No. 410

CRES staff member Nancy Czakla-Gruber (left) has the attention of 11 enthusiastic students who attended a "Principles and Techniques of Zoo Research" course offered by CRES last summer. The course's pace was rigorous, with four hours of lecture, five mornings a week, followed by companion laboratories each afternoon.

Learning By Doing

Summer may have long since faded, but memories of it never will for the 11 college students who participated in a "Principles and Techniques of Zoo Research" course recently.

The six-week experimental course conducted by CRES at the San Diego Zoo was the first of its kind to be offered anywhere in the world. A comprehensive overview covered CRES' research in many areas:

- ***genetics*** • ***cytogenetics***
- ***molecular and population genetics***
- ***chromosome identification techniques***
- ***biological rhythms***
- ***reptilian breeding cycles***
- ***reproductive physiology***
- ***endocrine cycles*** • ***animal behavior***
- ***collection, storage and transfer of sperm and embryos*** • ***virology and immunology***

The pace was rigorous—for both students and instructors—but everyone agreed that encouraging and enlarging the exposure of new people to the fields of exotic animal research is of critical importance.

Members of the CRES staff already are looking forward to conducting similar courses in the months and years to come.

CRES invites individuals and corporations to share in our commitment to the future of both humans and animals. We welcome your inquiries about establishing a memorial or annual stipend to support student fellowships on endangered species research. Please telephone Donna Damson, (619) 231-1515, ext. 246.

The Center for Reproduction of Endangered Species (CRES) is operated by the Zoological Society of San Diego, a non-profit organization.